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ABSTRACT

Focusing on health occupations, this document is one in a series of forty-one reprints from the Occupational Outlook Handbook providing current information and employment projections for individual occupations and industries through 1985. The specific occupations covered in this document include dental assistants, dental hygienists, dental laboratory technicians, health services administrators, nursing occupations (registered nurses, licensed practical nurses, nursing aides, orderlies, and attendants), and therapy and rehabilitation occupations (occupational therapists, occupational therapy assistants/aides, physical therapists, physical therapist assistants/aides, speech pathologists, and audiologists). The following information is presented for each occupation or occupational area: a code number referenced to the Dictionary of Occupational Titles; a description of the nature of the work; places of employment; training, other qualifications, and advancement; employment outlook; earnings and working conditions; and sources of additional information. In addition to the forty-one reprints covering individual occupations or occupational areas (CE 017 757-797), a companion document (CE 017 756) presents employment projections for the total labor market and discusses the relationship between job prospects and education. (BM)

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ED158132

Health Occupations

CE

Dental auxiliaries, nursing, therapy and rehabilitation, health services administration

Reprinted from the Occupational Outlook Handbook, 1978-79 Edition.

U.S. Department of Labor
Bureau of Labor Statistics
1978

Bulletin 1955-28

Containing the midpoints of the legs of right triangle *RST*, where pt. (−5, 5), *S* is pt. (1, 1), and *T* is pt. (3, 4).

Containing the longer diagonal of a quadrilateral whose vertices pts. (2, 2), (−2, −2), (1, −1), and (6, 4).

Show that the equations $y - 1 = \frac{1}{2}(x + 3)$ and $y - 4 = \frac{1}{2}(x$ are equivalent.

An equation of the line containing pts. (−2, 3) and (4, −1) ca written in the form $y - 3 = -\frac{1}{2}(x + 2)$ or in the $y + 1 = -\frac{1}{2}(x - 4)$, depending upon which point you take a (x_1, y_1). Show that the two equations are equivalent.

Show that the equations are equivalent.

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1) \qquad y - y_2 = \frac{y_1 - y_2}{x_1 - x_2}(x - x_2$$

State the equation of a line through pt. (p, q) and parallel to containing pts. (a, b) and (c, d). $(a \neq c)$.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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CE 017 782

DENTAL ASSISTANTS

(D.O.T. 079.378)

Nature of the Work

Dental assistants work with dentists as they examine and treat patients. The assistant makes the patients comfortable in the dental chair, prepares them for treatment, and obtains their dental records. The assistant hands the dentist the proper instruments and materials and keeps the patient's mouth clear by using suction or other devices. Dental assistants prepare materials for making impressions and restorations and expose radiographs and process dental X-ray film as directed by the dentist. They also provide oral health instruction and prepare instruments for sterilization.

Dental assistants perform a variety of duties that do not require the dentist's professional knowledge and skill. Some assistants make casts of the teeth and mouth from impressions taken by the dentist. These casts are used by dentists and technicians to make dentures. In some States, assistants apply medicaments to the teeth and oral tissue, remove excess cement used in the filling process from surfaces of the teeth, and place rubber dams on the teeth to isolate them for individual treatment. Some dental assistants manage the office and arrange and confirm appointments, receive patients, keep treatment records, send bills, receive payments, and order dental supplies and materials.

The work of the dental assistant should not be confused with that of the dental hygienist, who must be licensed to scale and polish the teeth. (See statement on dental hygienists elsewhere in the *Handbook*.)

Places of Employment

Nearly 135,000 persons worked as dental assistants in 1976; about 1 out of 10 work part time.

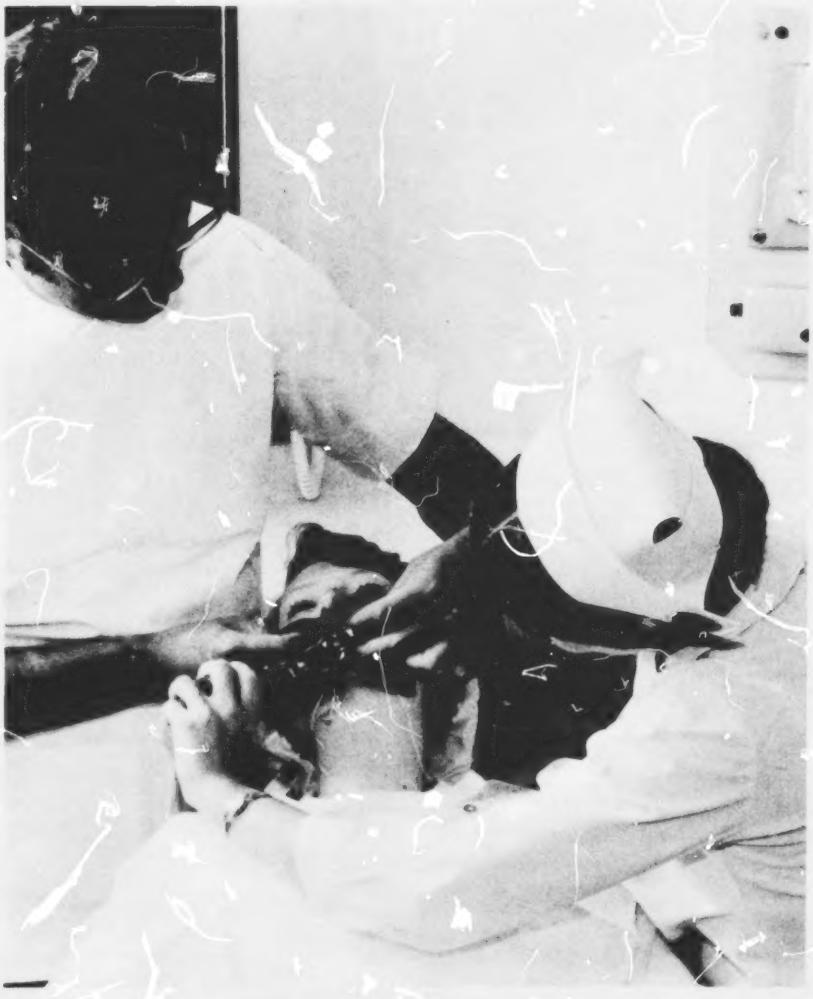
Most dental assistants work in private dental offices, either for individual dentists or for groups of dentists. Many of the remainder work in dental schools, hospital dental departments, State and local public health departments, or private clinics. The Federal Government employs dental assistants, chiefly in the Public Health Service, the Veterans Administration, and the Armed Forces.

Training, Other Qualifications, and Advancement

Most dental assistants learn their skills on the job. An increasing number, however, are trained in formal post-high school programs. About 280 such programs were accredited by the American Dental Association (ADA) in 1976.

Most post-high school courses in dental assisting are given in junior and community colleges or in vocational or technical schools. More than three-fourths of these programs take 1 year to complete and lead to a certificate or diploma. Graduates of 2-year programs offered in junior and community colleges earn an associate degree upon completion of specialized training and liberal arts courses. The minimum requirement for any of these programs is a high school diploma or its equivalent. Some schools also require typing or a science course for admission. Although some private schools offer 4- to 6-month courses in dental assisting, these are not accredited by the dental profession. Those receiving dental assistant training in the Armed Forces usually qualify for civilian jobs as dental assistants.

High school students interested in careers as dental assistants should



Most dental assistants learn their skills on the job.

take courses in biology, chemistry, health, typing, and office practices.

Approved dental assisting curriculums include classroom and laboratory instruction in skills and related theory. Trainees get practical experience in affiliated dental schools, local clinics, or selected dental offices.

A correspondence course accredited by the American Dental Association is available for employed dental assistants who are learning on the job or who otherwise are unable to participate in regular dental assisting programs on a full-time basis. The correspondence program is equivalent to 1 academic year of study, but generally requires about 2 years to complete.

Graduates of accredited dental assistant programs who successfully complete an examination administered by the Certifying Board of the American Dental Assistants Association become Certified Dental Assistants. Certification is acknowledgement of an assistant's qualifications but is not generally required for employment.

After working as dental assistants, some individuals seek to acquire skills and qualifications for practicing as dental hygienists. Prospective dental assistants who foresee this possibility should plan carefully since credit earned in a dental assistant program often is not applicable toward requirements for a dental hygiene certificate. Some dental assistants become sales representatives for firms that manufacture dental products.

Employment Outlook

Employment opportunities for dental assistants are expected to be excellent through the mid-1980's, especially for graduates of academic programs in dental assisting. Part-time opportunities also will be very favorable.

Employment of dental assistants is expected to grow much faster than the average for all occupations, largely because recent graduates of dental schools have been taught to use assistants in their practice. The increase in the demand for dental services which stems from population growth, a growing awareness of the importance of regular dental care, and the increasing ability of people to pay for care also will contribute to the demand for dental assistants. For example, increased participation in dental prepayment plans and public programs such as Medicaid bring dental services within the reach of many who could not afford them otherwise.

In addition to job openings created by growth in the demand for dental assistants, thousands of assistants also will be required each year to replace those who leave the field.

Earnings and Working Conditions

Salary depends largely on the assistant's education and experience, the duties and responsibilities attached to the particular job, and geographic location.

In the Federal Government, experience and the amount and type of education determine entrance salaries. In 1977, a high school graduate who had 6 months of general experience started at $7,408 a year; graduates of an ADA-approved 1-year training program who had an additional year of general experience could expect to start at $8,316 a year. In general, experienced dental assistants working for the Federal Government in 1977 earned average annual salaries of $9,100.

Although the 40-hour workweek prevails for dental assistants, the schedule is likely to include work on Saturday. A 2- or 3-week paid vacation is common. Some dentists provide sick leave and other benefits. Dental assistants who work for the Federal Government receive the same employee benefits as other Federal workers.

Dental assistants work in a well-lighted, clean environment. They must be careful in handling radiographic and other equipment.

Sources of Additional Information

Information about career opportunities, scholarships, accredited dental assistant programs, including the correspondence program, and requirements for certification is available from:

American Dental Assistants Association, 211 E. Chicago Ave., Chicago, Ill. 60611.

Other material on opportunities for dental assistants is available from:

Division of Dentistry, Public Health Service, U.S. Department of Health, Education, and Welfare, 9000 Rockville Pike, Bethesda, Md. 20014.

DENTAL HYGIENISTS

(D.O.T. 078.368)

Nature of the Work

Dental hygienists are oral health clinicians and educators who help the public develop and maintain good oral health. As members of the dental health team, dental hygienists may perform preventive and therapeutic services under the supervision of the dentist. Specific responsibilities of the hygienist vary, depending on the law of the State where the hygienist is employed, but may include: removing deposits and stains from patients' teeth; providing instructions for patient self-care, and dietetic and nutritional counseling; and the application of medicine for the prevention of tooth decay. They take medical and dental histories, expose and develop dental X-ray films, make model impressions of teeth for study, and prepare other diagnostic aids for use by the dentist. Pain control and restorative procedures also may be performed by dental hygienists in some States.

Dental hygienists who work in school systems serve in several capacities. Clinical functions include: examination of children's teeth, assistance to the dentist in determining the dental treatment needed, and reporting of their findings to parents. They also scale and polish teeth and give instruction on proper mouth care. In addition, they develop classroom or assembly programs on oral health.

A few dental hygienists assist in research projects. Those having advanced training may teach in schools of dental hygiene.

Dental hygienists must be licensed.

Places of Employment

Nearly 27,000 persons worked as dental hygienists in 1976. Many are employed part time. Most work in private dental offices. Public health agencies, school systems, industrial plants, clinics, hospitals, dental hygiene schools, and the Federal Government are other sources of employment for dental hygienists. Some who are graduates of bachelor's degree programs are commissioned officers in the Armed Forces.

Training and Other Qualifications

Dental hygienists must be licensed. To obtain a license in most States, a candidate must be a graduate of an accredited dental hygiene school and pass both a written and clinical examination. For the clinical examination, the applicant is required to perform dental hygiene procedures, such as removing deposits and stains from a patient's teeth. In 1976, candidates in 48 States and the District of Columbia could complete part of the State licensing requirements by passing a written examination given by the National Board of Dental Examiners. Few States permit dental hygienists licensed in other States to practice in their jurisdictions without further examination.

In 1976, 182 schools of dental hygiene in the United States were accredited by the American Dental Association. Most programs grant an associate degree; others lead to a bachelor's degree. Some institutions offer both types of programs. Eighteen schools offer master's degree programs in dental hygiene or related fields.

Completion of an associate degree program usually is sufficient for the dental hygienist who wants to practice in a private dental office. In order to do research, teach, and work in public or school health programs, at least a baccalaureate degree usually is required. Dental hygienists with a master's degree work as teachers or administrators in dental hygiene and dental assisting training programs, public health agencies, and in associated research.

Competition is keen for admission to dental hygiene schools. The minimum requirement for admission to a school of dental hygiene is graduation from high school. Several schools that offer the bachelor's degree admit students to the dental hygiene program only after they have completed 2 years of college. Many

schools also require that applicants take an aptitude test given by the American Dental Hygienists' Association. Dental hygiene training given in the Armed Forces does not fully prepare one to pass the licensing exam, but credit for that training may be granted to those who seek admission to accredited dental hygiene programs.

The curriculum in a dental hygiene program consists of courses in the basic sciences, dental sciences, clinical science, and liberal arts. These schools offer laboratory, clinical, and classroom instruction in subjects such as anatomy, physiology, chemistry, pharmacology, nutrition, histology (the study of tissue structure), periodontology (the study of gum diseases), dental materials, and clinical dental hygiene.

People who want to become dental hygienists should be those who enjoy working with others. The ability to put patients at ease is helpful. Personal neatness and cleanliness, manual dexterity, and good health also are important qualities. Among the courses recommended for high school students interested in careers in this occupation are biology, health, chemistry, speech and mathematics.

Employment Outlook

Employment opportunities for dental hygienists are expected to be good through the mid-1980's. Despite an anticipated rise in the number of graduates from schools of dental hygiene, the demand is expected to be greater than the number available for employment if recent trends in enrollments continue. There also should be very good opportunities for those desiring part-time employment, and for those willing to work in rural areas.

Employment of dental hygienists is expected to grow much faster than the average for all occupations, because of an expanding population and the growing awareness of the importance of regular dental care. Increased participation in dental prepayment plans and more group practice among dentists should result in new jobs for dental hygienists. Dental care programs for children also may lead to more employment opportunities in this field.

Earnings and Working Conditions

Earnings of dental hygienists are affected by the type of employer, education and experience of the individual hygienist, and the geographic location. Dental hygienists who work in private dental offices usually are salaried employees, although some are paid a commission for work performed, or a combination of salary and commission.

Dental hygienists working full time in private offices earned average salaries of about $12,900 a year in 1976, according to the limited data available. This salary was slightly above the average for all nonsupervisory workers in private industry, except farming. In 1977, the Federal Government paid dental hygienists with no experience starting salaries of $8,316 a year. Experienced dental hygienists working for the Federal Government earned average annual salaries of $10,500.

Dental hygienists employed full time in private offices usually worked between 35 and 40 hours a week. They may work on Saturdays or during evening hours. Some hygienists work for two dentists or more.

Dental hygienists usually work in clean, well-lighted offices. Important health protections for persons in this occupation are regular medical checkups and strict adherence to established procedures for using X-ray equipment and for disinfection.

Dental hygienists who work for school systems, health agencies, and the Federal or State governments have the same hours, vacation, sick leave, retirement, and health insurance benefits as other workers in these organizations.

Sources of Additional Information

For information about accredited programs and the educational requirements to enter this occupation, contact:

Office of Education, American Dental Hygienists' Association, 211 E. Chicago Ave., Chicago, Ill. 60611.

Other material on opportunities for dental hygienists is available from:

Division of Dentistry, Public Health Service, U.S. Department of Health, Education, and Welfare, 9000 Rockville Pike, Bethesda, Md. 20014.

The State Board of Dental Examiners in each State, or the National Board of Dental Examiners, 211 E. Chicago Ave., Chicago, Ill. 60611, can supply information on licensing requirements.

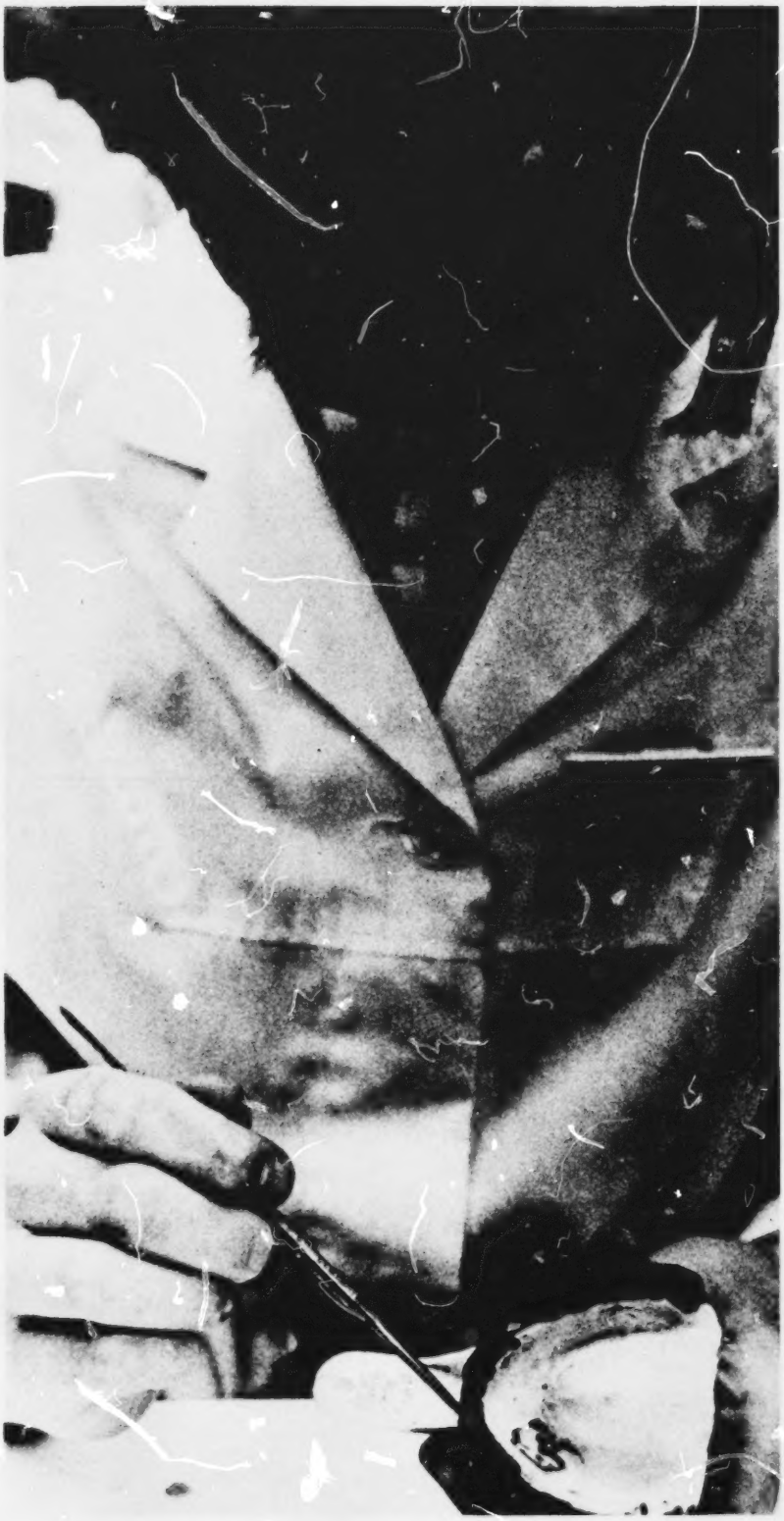
DENTAL LABORATORY TECHNICIANS

(D.O.T. 712.381)

Nature of the Work

Dental laboratory technicians make dentures (artificial teeth), fabricate metal or porcelain crowns and inlays to restore teeth, construct bridges of metal and porcelain to replace missing teeth, and also make dental orthodontic appliances. All work is done following written instructions submitted by the dentist, using impressions made by the dentist of a patient's teeth or mouth, from which models are made by dental stone pourings. Sometimes these model pourings are made by the dentist, but most often by the technician.

Trainees in beginning jobs usually mix and pour plaster into casts and molds and perform other simple tasks. As they gain experience, they do more difficult laboratory work. Some dental laboratory technicians do all kinds of laboratory work. Others are specialists who make crowns and bridges, arrange artificial teeth on dental appliances, make plastic molds for dentures, work with dental ceramics (porcelain), or make castings of gold or metal alloys. To perform their work, technicians use small hand instruments such as wax spatulas and wax carvers, as well as special electric lathes and drills, high-heat furnaces, metal-melting torches, and other kinds of specialized laboratory equipment.



Dental laboratory technicians generally need 4 to 5 years of training.

Places of Employment

About 42,000 persons worked as dental laboratory technicians in 1976. Most work in commercial laboratories, either as employees or as owners of the business. Commercial laboratories, which handle orders from dentists, usually employ fewer than 10 technicians. However, a few large laboratories employ over 200 technicians.

About 7,000 dental laboratory technicians work in dentists' offices. Others work for hospitals that provide dental services and for the Federal Government, chiefly in Veterans Administration hospitals and clinics and in the Armed Forces. Establishments that manufacture dental materials and equipment also employ technicians as technical or sales representatives.

Dental laboratories are located mainly in large cities and populous States. Many laboratories receive work through the mail from dentists who work a considerable distance away.

Training, Other Qualifications, and Advancement

Although no minimum formal education is needed to enter this occupation, a high school diploma is an asset. Many dental laboratory technicians learn their craft on the job, although more and more are taking formal training programs before starting work. On-the-job training usually lasts 4 or 5 years, depending on the trainee's previous experience, ability to master the techniques, and the number of specialized areas to be learned. A few public vocational high schools offer courses in dental laboratory work that may be taken in conjunction with on-the-job training.

In 1976, 2-year education programs accredited by the American Dental Association (ADA) were offered in 48 schools. High school graduation or equivalent education is required to enter these programs. The first year of training includes formal classroom instruction in dental law and ethics, chemistry, ceramics, metallurgy, and other related subjects. During the second year, the student gets supervised practical ex-

perience in the school, dental laboratory. After completion of the 2-year training program, the trainee may need about 3 years more of practical experience to develop the skills needed to be recognized as a well-qualified dental laboratory technician. Those receiving dental laboratory training in the Armed Forces usually qualify for civilian jobs as dental laboratory technicians.

Dental laboratory technicians may become Certified Dental Technicians by passing written and practical examinations given by the National Board for Certification, a trust established by the National Association of Dental Laboratories. Certification is becoming increasingly important as evidence of a technician's competence. Well-qualified technicians advance by becoming supervisors or managers in dental laboratories, teachers in dental lab training programs, or salespersons for dental products companies. Some technicians become owners of dental laboratories.

Among the personal qualifications that employers look for in selecting trainees are a high degree of manual dexterity, good color perception, patience, and a liking for detailed work. High school students interested in careers in this occupation are advised to take courses in art, crafts, metal shop, metallurgy, and sciences.

Employment Outlook

Job opportunities for well-qualified dental laboratory technicians are expected to be excellent through the mid-1980's. Some experienced technicians should be able to establish laboratories of their own. A technician whose work has become known to several dentists in a community will have the best prospects of building a successful business.

Employment of dental laboratory technicians is expected to grow faster than the average for all occupations due to expansion of dental prepayment plans and the increasing number of older people who require dentures. In addition, the number of dentists is not expected to keep pace with the demand for their services; to devote more time to treatment of patients, dentists will send more of their laboratory work to commercial firms, or hire technicians to work directly for them.

In addition to job opportunities created by growth, many openings for dental laboratory technicians will occur each year because of the need to replace technicians who die or retire.

Earnings and Working Conditions

Dental laboratory technicians who worked full-time in commercial laboratories received the following average annual salaries in 1976: Trainees with no experience, $5,600; graduates of 2-year dental technology courses with no experience, $7,600; technicians with no formal training and 2 years of on-the-job experience, $7,300; technicians with 2 to 5 years of experience, regardless of training, $9,400; and technicians with more than 5 years of experience, regardless of training, up to $18,000. Technicians who specialized in ceramics received the highest salaries (up to $25,000). Large dental laboratories employ supervisors or managers who usually earn more than technicians. In general, earnings of self-employed technicians are higher than those of salaried workers.

In the Federal Government, graduates of ADA-approved programs with no experience were paid starting salaries of $8,316 a year in 1977. Experienced dental laboratory technicians employed in the Federal Government generally earned between $11,523 and $16,588 annually, with the average earning $14,000 per year.

Salaried technicians usually work 40 hours a week but selfemployed technicians frequently work longer hours. Many technicians in commercial laboratories receive paid holidays and vacations and some also receive paid sick leave, bonuses, and other fringe benefits. Technicians employed by the Federal Government have the same benefits as other Federal employees.

Sources of Additional Information

For information about training and a list of approved schools contact:

American Dental Association, Council on Dental Education, 211 E. Chicago Ave., Chicago, Ill. 60611.

Information on scholarships is available from dental technology schools or from the American Fund for Dental Health, 211 East Chicago Ave., Chicago, Ill. 6061l.

For information on career opportunities in commercial laboratories and requirements for certification, contact:

National Association of Dental Laboratories, 3801 Mt. Vernon Ave., Alexandria, Va. 22305.

Information on careers in the dental technology field also is available from:

Division of Dentistry, Public Health Service, U.S. Department of Health, Education, and Welfare, 9000 Rockville Pike, Bethesda, Md. 20014.

HEALTH SERVICES ADMINISTRATORS

(D.O.T. 169.168, 187.118, and 187.168)

Nature of the Work

Medical and health care is provided by organizations that vary from large teaching hospitals to small walk-in clinics. Each of these requires effective management to function properly. Health administrators, under the general supervision of boards of directors or other governing bodies, provide this management.

Administrators coordinate the various functions and activities that make a health organization work. They may do this personally, where the organization is small, or direct a staff of assistant administrators in larger organizations. Health administrators make management decisions on matters such as the need for additional personnel and equipment, current and future space requirements, and the budget.

Some health services administrators, including those who manage hospitals or nursing homes, oversee nursing, food services, and in-service training programs. Assistant administrators usually direct the daily opera-

Administrators coordinate the various activities of a health organization.

tions of these departments; however, the chief executive keeps informed through formal and informal meetings with the assistants, the medical staff, and others. In addition to these management activities, many health administrators help to carry out fundraising drives and promote public participation in health programs. This phase of the administrator's job often includes speaking before civic groups, arranging publicity, and coordinating the activities of the organization with those of government or community agencies.

Places of Employment

About 160,000 persons worked as health services administrators in 1976. Most administrators work in health facilities, including hospitals (which employed about half of all administrators), nursing and personal care homes, and health management firms that provide administrative services to health facilities at a specified contract price.

Some health administrators work for government agencies, including State and local health departments and the U.S. Public Health Service. In addition, the Federal Government hires administrators in Veterans Administration and Armed Forces hospitals and clinics. Others work for voluntary health agencies that conduct research and provide care and treatment for victims of particular diseases or physical impairments.

Training, Other Qualifications, and Advancement

Educational requirements for health services administrators vary according to the position's level of responsibility and the size of the organization. Generally, larger organizations with more complicated administrative structures require higher credentials than smaller ones.

Applicants with master's degrees in health or hospital administration may be hired as associate or assistant administrators in hospitals, while those with master's degrees in public health often find work as program analysts or program representatives in public health departments. Very few master's degree recipients take entry positions in nursing or personal care homes, although many nursing home administrators pursue graduate education while employed.

Bachelor's degree recipients usually begin their careers as administrative assistants or department heads in hospitals, or as assistant administrators in nursing homes. Graduates of 2-year, associate degree programs generally are hired as unit directors or assistant department heads in hospitals, or as assistants to program representatives in public health departments. Some associate degree holders find assistant administrator jobs in small nursing homes.

The Ph. D. degree usually is required for positions in teaching or research, and is an asset for those seeking administrative jobs in the larger, more prestigious health organizations. Although some public health departments still require chief administrators to be physicians, the trend is away from this.

Administrators in Armed Forces hospitals usually are career military personnel.

In 1976, over 40 bachelor and associate degree programs in health services administration were offered—the majority were 4-year curriculums. In addition, there were about 52 programs in hospital or health services administration that led to the master's degree, and 19 schools of public health offered programs leading to a master's degree in public health.

To enter graduate programs, applicants must have a bachelor's degree, with courses in natural sciences, psychology, sociology, statistics, accounting, and economics. Competition for entry to these programs is keen, and applicants need above average grades to gain admission. The programs generally last about 2 years and may include some supervised administrative experience in hospitals, clinics, or health agencies. Programs may include courses such as hospital organization and management, accounting and budget control, personnel administration, public health ad-

ministration, and the economics of health care.

All States and the District of Columbia require that the administrator of a nursing or personal care home be licensed. Requirements are not uniform, but they generally specify a level of education, such as a bachelor's degree, plus some amount of experience in the field.

Personal qualifications needed for success as a health administrator include initiative and an interest in helping the sick. Administrators should be able to work with and motivate people, and organize and direct large-scale activities. They also should enjoy public speaking.

Health administrators advance in the profession by taking increasingly more responsible positions. For example, some hospital administrators begin their careers in small hospitals in positions with broad responsibilities, such as assistant administrator. They advance by moving to jobs as associate or chief administrator in larger hospitals. More commonly, they start in a large institution in a position that is somewhat narrow in scope—for example, as department head in charge of purchasing. Regardless of the path of advancement chosen, the ultimate occupational goal in hospitals and nursing homes is the job of chief executive or chief administrative officer.

Employment Outlook

The number of graduate programs in health administration has increased rapidly in recent years and administative specialists with graduate degrees in other fields also have entered the profession. Consequently, it may become more difficult for those with less than graduate education to enter health administration in top management positions. In addition, some administrative jobs will continue to be filled by registered nurses, physicians, and members of religious communities.

Employment of health services administrators is expected to grow much faster than the average for all occupations to 1985 as the quantity of patient services increases and health services management becomes more complex. The demand for administrators will be stimulated by the formation of more group medical practices and health maintenance organizations (facilities that offer subscribers a broad range of medical services for a monthly fee paid in advance). Administrators also will be needed in nursing and convalescent homes to handle the increasing amount of administrative work expected as these facilities expand in size.

Earnings and Working Conditions

Salaries of hospital administrators depend on factors such as the level of job responsibility; the size, type, and location of the hospital; and the size of its administrative staff and budget.

Chief administrators in hospitals with up to 199 beds earned an average of $25,500 a year in 1976. Some, in larger hospitals, earned over $45,000. Recent recipients of master's degrees in health administration starting work in Veterans Administration (VA) hospitals earned $14,097 a year in 1977. The average salary paid administrators of Federal hospitals was $26,700.

Commissioned officers in the Armed Forces who work as hospital administrators hold ranks ranging from second lieutenant to colonel or from ensign to captain. Commanding officers of large Armed Forces hospitals are generally physicians, who may hold higher ranks. Hospital administrators in the U.S. Public Health Service are commissioned officers holding ranks ranging from lieutenant (junior grade) to captain in the Navy.

Administrators of nursing and personal care homes usually earn lower salaries than those paid hospital administrators in facilities having similar numbers of beds. Most administrators employed by voluntary health agencies earned between $15,000 and $30,000 a year in 1976.

Health administrators often work long hours. Because health facilities such as nursing homes and hospitals operate around the clock, administrators in these institutions may be called at all hours to settle emergency problems. Also, some travel may be required to attend meetings or, in the case of regional, State or local public health department and voluntary health agency administrators, to inspect facilities in the field.

Sources of Additional Information

Information about health administration and the academic programs in this field offered by universities, colleges, and community colleges is available from:

American College of Hospital Administration, 840 North Lake Shore Drive, Chicago, Illinois 60611.

Association of University Programs in Health Administration, One Dupont Circle, NW., Washington, D.C. 20036.

American Public Health Association, Division of Program Services, 1015 18th St., NW., Washington, D.C. 20036.

National Health Council, Health Careers Program, 1740 Broadway, New York, N.Y. 10019.

American College of Nursing Home Administrators, 4650 East-West Hwy., Washington, D.C. 20014.

NURSING OCCUPATIONS

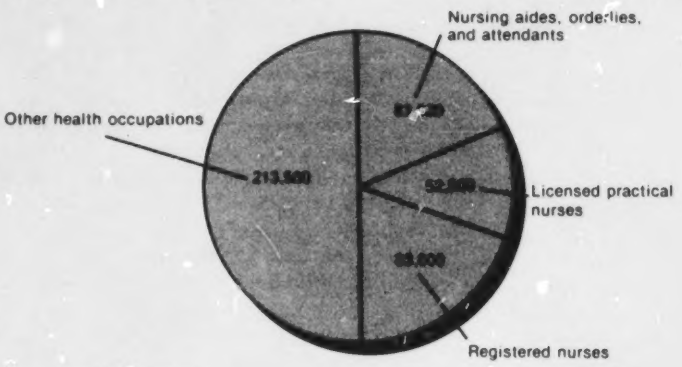
The nursing field, consisting of registered nurses; licensed practical nurses; and nursing aides, orderlies, and attendants, accounts for about one-half of total employment among health service workers. Nursing personnel perform a variety of duties to care for and comfort the sick, the injured, and others requiring medical services.

This section deals in detail with the three basic nursing occupations.

Registered nurses (*RN's*) follow the medical regimen prescribed by physicians but often must draw on their professional training to make in-

About 50 percent of the job openings in health occupations during the next 10 years will be for nursing personnel

Average annual openings, 1976-85



Source: Bureau of Labor Statistics

dependent judgments in providing nursing services. Some registered nurses, after advanced training, become *nurse practitioners* and perform services, such as physical examinations, that traditionally have been handled by physicians. Some nurses become head nurses with responsibility for all nursing services of a specified area of an institution, for example, a pediatrics ward.

Licensed practical nurses provide skilled nursing care to sick, injured, and convalescent patients. They work under the general supervision of physicians and registered nurses, and may sometimes supervise nursing aides, orderlies, and attendants.

Nursing aides, orderlies, and attendants make up the largest group of nursing personnel. They serve meals, feed patients, and do other tasks that free professional and practical nurses for work requiring professional and technical training.

Persons who wish to become registered nurses, licensed practical nurses, or nursing aides, orderlies, and attendants should like working with people because they must work closely with other members of the health team and care for patients who are uncomfortable and sometimes irritable. Nursing workers must be reliable and keep a level head in emergencies.

REGISTERED NURSES

(D.O.T. 075.118 through .378)

Nature of the Work

Nursing plays a major role in health care. As important members of the health care team, registered nurses perform a wide variety of functions. They observe, evaluate, and record symptoms, reactions, and progress of patients; administer medications; assist in the rehabilitation of patients; instruct patients and family members in proper health maintenance care; and help maintain a physical and emotional environment that promotes recovery.

Some registered nurses provide hospital care. Others perform research activities or instruct students. The setting usually determines the scope of the nurse's responsibilities.

Hospital nurses constitute the largest group of nurses. Most are staff nurses who provide skilled bedside nursing care and carry out the medical treatment prescribed by physicians. They may also supervise practical nurses, aides, and orderlies. Hospital nurses usually work with groups of patients that require similar nursing care. For instance, some nurses work with patients who have had surgery; others care for children, the elderly, or the mentally ill. Some are administrators of nursing services.

Private duty nurses give individual care to patients who need constant attention. The private duty nurse is self-employed and may work in a home, in a hospital, or in a convalescent institution.

Office nurses assist physicians, dental surgeons, and occasionally dentists in private practice or clinics. Sometimes they perform routine laboratory and office work in addition to their nursing duties.

Community health nurses care for patients in clinics, homes, schools, and other community settings. They instruct patients and families in health care and give periodic care as prescribed by a physician. They may also instruct groups of patients in proper diet and arrange for immunizations. These nurses work with community leaders, teachers, parents, and physicians in community health education. Some community health nurses work in schools.

Nurse educators teach students the principles and skills of nursing, both in the classroom and in direct patient care. They also conduct continuing education courses for registered nurses, practical nurses, and nursing assistants.

Occupational health or industrial nurses provide nursing care to employees in industry and government and, along with physicians, promote employee health. As prescribed by a doctor, they treat minor injuries and illnesses occurring at the place of employment, provide for the needed nursing care, arrange for further medical care if necessary, and offer health counseling. They also may assist with health examinations and inoculations.

(Licensed practical nurses who also perform nursing services are discussed elsewhere in the *Handbook*.)

Places of Employment

About 960,000 persons worked as registered nurses in 1976. About one-third worked on a part-time basis.

About three-quarters of all registered nurses worked in hospitals,

Employment opportunities for registered nurses are expected to be favorable through the mid-1980's.

nursing homes, and related institutions. Community health nurses in government agencies, schools, visiting nurse associations, and clinics numbered about 65,000; nurse educators in nursing schools accounted for about 33,000; and occupational health nurses in industry, about 20,000. About 100,000 more worked in the offices of physicians or other health practitioners, or were private duty nurses hired directly by patients. Most of the others were staff members of professional nurse and other organizations or worked for State boards of nursing or research organizations.

Training, Other Qualifications, and Advancement

A license is required to practice professional nursing in all States and in the District of Columbia. To get a license, a nurse must be a graduate of a school of nursing approved by the State board of nursing and pass a written State competency examination. Nurses may be licensed in more than one State, either by examination or endorsement of a license issued by another State.

Three types of educational programs—diploma, baccalaureate, and associate degree—prepare candidates for licensure. However, a minimum of a baccalaureate degree is preferred for those who aspire to administrative or management positions, and those planning to work in research, consultation, teaching, or clinical specialization, which require education at the master's level. Graduation from high school is required for admission to all schools of nursing.

Diploma programs are conducted by hospital and independent schools and usually require 3 years of training. Bachelor's degree programs usually require 4 years of study in a college or university, although a few require 5 years. Associate degree programs in junior and community colleges require approximately 2 years of nursing education. In addition, several programs provide licensed practical nurses with the training necessary to upgrade themselves to registered nurses while they continue to work part time. These programs generally offer an associate of arts degree. In 1976, about 1,375 programs (associate, diploma, and baccalaureate) were offered in the United States. In addition, there were 102 master's degree and 12 doctoral degree programs in nursing.

Programs of nursing include classroom instruction and supervised nursing practice in hospitals and health facilities. Students take courses in anatomy, physiology, microbiology, nutrition, psychology, and nursing. They also get supervised clinical experience in the care of patients who have different types of health problems. Students in bachelor's degree programs as well as in some of the other programs are assigned to community agencies to learn how to care for patients in clinics and in the patients' homes. Varying amounts of general education are combined with nursing education in all three types of programs.

Students who need financial aid may qualify for federally sponsored nursing scholarships or low-interest loans. Those who want to pursue a nursing career should have a sincere desire to serve humanity and be sympathetic to the needs of others. Nurses must be able to accept responsibility and direct or supervise the

activity of others; must have initiative, and in appropriate situations be able to follow orders precisely or determine if additional consultation is required; and must use good judgment in emergencies. Good mental health is needed in order to cope with human suffering and frequent emergency situations. Staff nurses need physical stamina because of the amount of time spent walking and standing.

From staff positions in hospitals, experienced nurses may advance to head nurse, assistant director, and director of nursing services. A master's degree, however, often is required for supervisory and administrative positions, as well as for positions in nursing education, clinical specialization, and research. Public health agencies require a baccalaureate degree for employment. Advancement may be difficult for nurses who do not have a baccalaureate or master's degree in community health nursing.

A growing movement in nursing, generally referred to as the "nurse practitioner program" is opening new career possibilities. Several post-baccalaureate programs prepare nurses for highly independent roles in the clinical care and teaching of patients. These nurses practice in primary roles that include pediatrics, geriatrics, community health, mental health, and medical-surgical nursing.

Employment Outlook

Employment opportunities for registered nurses are expected to be favorable through the mid-1980's. Some competition for more desirable, higher paying jobs is expected in areas where training programs abound, but opportunities for full- or part-time work in present shortage areas, such as some southern States and many inner-city locations, are expected to be very good through 1985. For nurses who have had graduate education, the outlook is excellent for obtaining positions as administrators, teachers, clinical specialists, and community health nurses.

Growth in employment of registered nurses is expected to be faster than the average for all occupations because of extension of prepayment programs for hospitalization and medical care, expansion of medical services as a result of new medical techniques and drugs, and increased interest in preventive medicine and rehabilitation of the handicapped. In addition to the need to fill new positions, large numbers of nurses will be required to replace those who leave the field each year.

Earnings and Working Conditions

Registered nurses who worked in hospitals in 1976 received average starting salaries of $11,820 a year, according to a national survey conducted by the University of Texas Medical Branch. This was above the average for nonsupervisory workers in private industry, except farming. Registered nurses in nursing homes can expect to earn slightly less than those in hospitals. Salaries of industrial nurses averaged $240 a week in mid-1976, according to a survey conducted by the Bureau of Labor Statistics.

In 1977, the Veterans Administration paid inexperienced nurses who had a diploma or an associate degree starting salaries of $10,370 a year; those with baccalaureate degrees, $12,131. Nurses employed in all Federal Government agencies earned an average of $15,500 in 1977.

Most hospital and nursing home nurses receive extra pay for work on evening or night shifts. Nearly all receive from 5 to 13 paid holidays a year, at least 2 weeks of paid vacation after 1 year of service, and also some type of health and retirement benefits.

Sources of Additional Information

For information on approved schools of nursing, nursing careers, loans, scholarships, salaries, working conditions, and employment opportunities, contact:

Coordinator, Undergraduate Programs, Department of Nursing Education, American Nurses' Association, 2420 Pershing Rd., Kansas City, Mo. 64108.

For career information and a list of schools of nursing, contact:

Career Information Services, National League for Nursing, 10 Columbus Circle, New York, N.Y. 10019.

Information about employment opportunities in the Veterans Administration is available from:

Department of Medicine and Surgery, Veterans Administration, Washington, D.C. 20420.

LICENSED PRACTICAL NURSES

(D.O.T. 079.378)

Nature of the Work

Licensed practical nurses (LPN's) help care for the physically or mentally ill and infirm. Under the direction of physicians and registered nurses, they provide nursing care that requires technical knowledge but not the professional education and training of a registered nurse. (See statement on registered nurses.) In California and Texas, licensed practical nurses are called *licensed vocational nurses*.

In hospitals, LPN's provide much of the bedside care needed by patients. They take and record temperatures and blood pressures, change dressings, administer certain prescribed medicines, and help patients with bathing and other personal hygiene. They assist physicians and registered nurses in examining patients and in carrying out nursing procedures. They also assist in the delivery, care, and feeding of infants. Some practical nurses work in specialized units such as intensive care units, recovery rooms, or burn units. They perform special nursing procedures and operate sophisticated equipment to provide care for seriously ill or injured patients. In some instances, experienced LPN's supervise hospital attendants and nursing aides. (See statement on nursing aides, orderlies, and attendants.)

LPN's who work in private homes provide day-to-day patient care that

LPN's provide much of the bedside care needed by hospital patients.

seldom involves highly technical procedures or complicated equipment. In addition to providing nursing care, they may prepare meals, see that patients are comfortable and help keep up their morale. They also teach family members how to perform simple nursing tasks.

In doctors' offices and in clinics, LPN's prepare patients for examination and treatment, administer medications, apply dressings, and teach patients prescribed health care regimens. They also may make appointments and record information about patients.

Places of Employment

In 1976, about 460,000 persons worked as LPN's—about three-fifths of them in hospitals. Most of the others worked in nursing homes, clinics, doctors' offices, sanitariums, and other long-term care facilities. Many worked for public health agencies and welfare and religious organizations. Some self-employed nurses worked in hospitals or in the homes of their patients.

Training, Other Qualifications, and Advancement

All States and the District of Columbia regulate the preparation and licensing of practical nurses. To become licensed, applicants must complete a course of instruction in practical nursing that has been approved by the State board of nursing and pass a written examination. Educational requirements for enrollment in State-approved training programs range from completion of eighth or ninth grade to high school graduation. Many schools do not require completion of high school but they give preference to graduates. Physical examinations and aptitude tests are usually required. Volunteer hospital work can provide a useful background for practical nursing, but most applicants have no prior work experience.

In 1976, over 1,350 State-approved programs provided practical nursing training. Trade, technical, or vocational schools offered more than half of these programs. Other programs were available at junior colleges, local hospitals, health agencies, and private educational institutions. Several programs operated by the Army for military personnel also were State-approved for practical nurse training. Graduates from these programs are eligible for licensure.

Practical nurse training programs are generally 1 year long and include both classroom study and clinical practice. Classroom instruction covers nursing concepts and principles and related subjects including anatomy, physiology, medical-surgical nursing, pediatrics, obstetrics, psychiatric nursing, administration of drugs, nutrition, first aid, and community health. Students learn to apply their skill to an actual nursing situation through supervised clinical experience—usually in a hospital.

Those who wish to become licensed practical nurses should have a deep concern for human welfare. They must be emotionally stable because working with sick and injured people sometimes can be upsetting.

As part of a health care team, they must be able to follow orders and work under close supervision. Good health is very important, as is the physical stamina needed to work while standing a great deal.

Advancement opportunities are limited without additional training or formal education. In-service educational programs prepare some LPN's for work in specialized areas, such as post-surgery recovery rooms, or intensive care units. Under career ladder programs, nurses' aides may attend training to become LPN's while continuing to work part-time. Simi-

larly, in some cases, LPN's may prepare to become registered nurses while they continue to work part-time.

Employment Outlook

The employment outlook for LPN's is expected to be very good through the mid-1980's. Employment is expected to continue to rise much faster than the average for all occupations in response to the needs of a growing population and expanded public and private health insurance plans. Also, newly licensed practical nurses will be needed each year in large numbers to replace those who die, retire, or leave the occupation for other reasons.

Earnings and Working Conditions

The average starting salary of LPN's in hospitals was about $9,100 a year in 1976, according to a national survey conducted by the University of Texas Medical Branch.

Federal hospitals offered beginning LPN's an annual salary of $7,408 in 1977.

Many hospitals give pay increases after specific periods of satisfactory service. Practical nurses generally work 40 hours a week, but often this workweek includes some work at night and on weekends and holidays. Many hospitals provide paid holidays and vacations, health insurance, and pension plans.

In private homes, LPN's usually work 8 to 12 hours a day and go home at night. Private duty nursing affords a great deal of independence to the practical nurse in setting work hours and determining the length and frequency of vacations.

Sources of Additional Information

A list of State-approved training programs and information about practical nursing is available from:

National League for Nursing, 10 Columbus Circle, New York, N.Y. 10019.

National Association for Practical Nurse Education and Service, Inc., 122 East 42d St., Suite 800, New York, N.Y. 10017.

For information about a career in practical nursing, contact:

National Federation of Licensed Practical Nurses, Inc., 250 West 57th St., New York, N.Y. 10019.

Information about employment opportunities in U.S. Veterans Administration hospitals is available from your local Veterans Administration hospital, as well as:

Department of Medicine and Surgery, Veterans Administration, Washington, D.C. 20420.

NURSING AIDES, ORDERLIES, AND ATTENDANTS

(D.O.T. 355.687 through .887)

Nature of the Work

Nursing aides, orderlies, and attendants perform a variety of duties to care for sick and injured people. Other job titles include *hospital attendant*, *nursing assistant*, *auxiliary nursing worker*, *geriatric aide*, and (in mental institutions) *psychiatric aide*.

Nursing aides and orderlies answer patients' bell calls and deliver messages, serve meals, feed patients who are unable to feed themselves, make beds, and bathe and dress patients. They also may give massages, take temperatures, and assist patients in getting out of bed and walking. Orderlies escort patients to operating and examining rooms and transport and set up heavy equipment. Some attendants may work in hospital pharmacies or supply rooms storing and moving supplies.

The duties of nursing aides depend on the policies of the institutions where they work, the type of patient being cared for, and—equally important—the capacities and resourcefulness of the nursing aide or orderly. In some hospitals, they may clean patients' rooms and do other household tasks. In others, under the supervi-

Over 1 million persons worked as nursing aides, orderlies, and attendants in 1976.

sion of registered nurses and licensed practical nurses, they may assist in the care of patients. The tasks performed for patients differ considerably, and depend on whether the patient is confined to bed following major surgery, is recovering after a disabling accident or illness, or needs assistance with daily activities because of infirmity caused by advanced age.

Another occupation similar to nursing aide is *homemaker-home health aide*. Working in the homes of patients, they perform duties similar to those of nursing aides, as well as doing the cooking and other light housework. (See statement on homemaker-home health aides elsewhere in the *Handbook*.)

Places of Employment

About 1 million persons worked as nursing aides, orderlies, and attendants in 1976. Most work in hospitals, although a rapidly growing number work in nursing homes and other institutions that provide facilities for long-term care and recuperation.

Training, Other Qualifications, and Advancement

Although some employers prefer high school graduates, many, such as Veterans Administration hospitals, do not require a high school diploma. Employers often accept applicants who are 17 or 18 years of age. Others—particularly nursing homes and mental hospitals—prefer to hire more mature persons who are at least in their mid-twenties.

Nursing aides generally are trained after they are hired. Some institutions combine on-the-job training, under the close supervision of registered or licensed practical nurses, with classroom instruction. Trainees learn to take and record temperatures, bathe patients, change linens on beds that are occupied by patients, and move and lift patients. Training may last several days or a few months, depending on the policies of the hospital or other institution, the complexity of the duties, and the aide's aptitude for the work.

Courses in home nursing and first aid, offered by many public school systems and other community agencies provide a useful background of knowledge for the work. Volunteer work and temporary summer jobs in hospitals and similar institutions also are helpful. Applicants should be healthy, tactful, patient, understanding, emotionally stable, and dependable. Nursing aides, as other health workers, should have a genuine desire to help people, be able to work as part of a team, and be willing to perform repetitive, routine tasks.

Opportunities for promotions are limited without further training. Some acquire specialized training to prepare for better paying positions such as hospital operating room technician.

To become licensed practical nurses, nursing aides must complete the year of specialized training required for licensing. Some in-service programs allow nursing aides to get this training while they continue to work part time.

Employment Outlook

Employment of nursing aides is expected to increase faster than the average for all occupations through the mid-1980's. In addition to those needed because of occupational growth, many thousands of nursing aides will be needed each year to replace workers who die, retire, or leave the occupation for other reasons.

Although most jobs for nursing aides and orderlies currently are in hospitals, most new openings will be in nursing homes, convalescent homes, and other long-term care facilities. Major reasons for expected occupational growth are the increasing need for medical care of a growing population, including a larger proportion of elderly people, and the increasing ability of people to pay for health care, largely as a result of the growth in public and private health insurance.

Earnings and Working Conditions

Nursing aides, orderlies, and attendants earned salaries that were below the average for all nonsupervisory workers in private industry, except farming. Nursing aides employed full time by nursing homes and related facilities earned considerably less than those in hospitals. Depending on the experience of the applicant, starting salaries of nursing aides in Veterans Administration hospitals ranged from $125 to $140 a week in 1977. The average salary earned by nursing aides employed by the Federal Government was $185 a week in 1977.

With few exceptions, the scheduled workweek of attendants in hospitals is 40 hours or less. Because nursing care must be available to patients on a 24-hour-a-day basis, scheduled hours include nightwork and work on weekends and holidays.

Attendants in hospitals and similar institutions generally receive paid vacations which, after 1 year of service, may be a week or more in length. Paid holidays and sick leave, hospital and medical benefits, shift differentials, and pension plans also are available to many hospital employees.

Sources of Additional Information

Information about employment may be obtained from local hospitals and nursing homes. Additional information about the work of nursing aides, orderlies, and attendants is available from:

Division of Careers and Recruitment, American Hospital Association, 840 N. Lake Shore Dr., Chicago, Ill. 60611.

THERAPY AND REHABILITATION OCCUPATIONS

Persons disabled by accident, burns, strokes, and disease, as well as the emotionally disturbed, all benefit from the care given by therapy and rehabilitation workers. After an accident or serious illness leaves a victim fully or partially disabled, *physical therapists*, and *physical therapist*

assistants and *aides* work to restore the patient to the fullest possible level of activity. *Occupational therapists* and *occupational therapy assistants and aides* guide the disabled further along the road to realizing a satisfying and productive life. They teach disabled and emotionally disturbed clients skills and crafts that help build coordination and self-confidence, and, in many cases, prepare them to return to work. They also help the elderly in nursing homes by involving them in interesting and absorbing hobbies. Also described in this section are *speech pathologists* and *audiologists*, who specialize in helping those with speech and hearing problems to overcome their handicaps.

Anyone considering work in one of these fields should have a genuine concern for the physical and emotional well-being of others. Emotional stability and the ability to maintain a pleasant disposition and a positive outlook also are important, because these workers often deal with clients affected by severe handicaps.

Other occupations also provide opportunity for work with the disabled and handicapped. Rehabilitation counselors give personal and vocational guidance to the physically, mentally, or socially handicapped. Employment counselors work with the disabled as well as the able-bodied in career planning and job adjustment. Both occupations are described elsewhere in the *Handbook*.

OCCUPATIONAL THERAPISTS

(D.O.T. 079.128)

Nature of the Work

Occupational therapists plan and direct educational, vocational, and recreational activities designed to help mentally and physically disabled patients become self-sufficient. They evaluate the capacities and skills of clients, set goals, and plan a therapy program together with the client and members of a medical team which may include physicians, physical therapists, vocational counselors, nurses, social workers, and other specialists.

About two therapists out of five work with emotionally handicapped patients, and the rest work with physically disabled persons. These clients represent all age groups and degrees of disability. Patients participate in occupational therapy to determine the extent of abilities and limitations; to regain physical, mental, or emotional stability; to relearn daily routines such as eating, dressing, writing, and using a telephone; and, eventually, to prepare for employment.

Occupational therapists teach manual and creative skills such as weaving and leather working, and business and industrial skills such as typing and the use of power tools. These skills are taught to restore mobility and coordination and to help the patient regain physical and emotional stability. Therapists also plan and direct games and other activities, especially for children. They may design and make special equipment or splints to help disabled patients.

Besides working with patients, occupational therapists supervise student therapists, occupational therapy assistants, volunteers, and auxiliary nursing workers. The chief occupational therapist in hospitals may teach medical and nursing students the principles of occupational therapy. Many therapists supervise occupational therapy departments, coordinate patient activities, or are consultants to local and State health departments and mental health agencies. Some teach in colleges and universities.

Places of Employment

About 10,600 occupational therapists were employed in 1976. About 4 out of 10 occupational therapists work in hospitals. Rehabilitation centers, nursing homes, schools, outpatient clinics, community mental health centers, and research centers employ most of the others. Some work in special sanitariums or camps

Occupational therapists help handicapped people prepare for employment.

for handicapped children, others in State health departments. Still others work in home-care programs for patients unable to attend clinics or workshops. Some are members of the Armed Forces.

Training, Other Qualifications, and Advancement

A degree or certification in occupational therapy is required to enter the profession. In 1976, 49 colleges and universities offered programs in occupational therapy which were accredited by the American Medical Association and the American Occupational Therapy Association. All of these schools offer bachelor's degree programs. Some have 2-year programs and accept students who have completed 2 years of college. Some also offer shorter programs, leading to a certificate or a master's degree in occupational therapy for students who have a bachelor's degree in another field. A graduate degree often is required for teaching, research, or administrative work.

Course work in occupational therapy programs includes physical, biological, and behavioral sciences and the application of occupational therapy theory and skills. These programs also require students to work for 6 to 9 months in hospitals or health agencies to gain experience in clinical practice. Graduates of accredited educational programs are eligible to take the American Occupational Therapy Association certification examination to become a registered occupational therapist (OTR). Occupational therapy assistants who are certified by the association (COTA's) and have 4 years of approved work experience also are eligible to take the examination to become registered occupational therapists. Those COTA's considering this path of entry to the occupation should contact the Director of Certification of the American Occupational Therapy Association to identify the types of experience required to qualify for the examination and to determine the availability of suitable work settings.

Entry to educational programs is keenly competitive and applicants are screened carefully for previous academic performance to select those most likely to complete their studies successfully. Persons considering this profession, therefore, should have above average academic performance and consistent grades of "B" or better in science courses, including biology and chemistry. College students who consider transferring from another academic discipline to an occupational therapy program in their sophomore or junior year need superior grades because competition for entrance to programs is more intense after the freshman year.

Personal qualifications needed in the profession include a sympathetic but objective approach to illness and disability, maturity, patience, imagination, manual skills, and the ability to teach. In addition to biology and chemistry, high school students interested in careers as occupational therapists are advised to take courses in health, crafts, and the social sciences.

Newly graduated occupational therapists generally begin as staff therapists. Advancement is chiefly to supervisory or administrative positions; some therapists pursue advanced education and teach or do research.

Employment Outlook

Employment in this occupation is expected to grow much faster than the average for all occupations due to public interest in the rehabilitation of disabled persons and the success of established occupational therapy programs. Many therapists will be needed to staff hospital rehabilitation departments, community health centers, extended care facilities, psychiatric centers, schools for children with developmental and learning disabilities, and community home health programs.

However, the increasing number of graduates from occupational therapy programs may exceed the number of openings that will occur each year due to growth in the occupation and replacement of those who will die or retire. As a result, new graduates may face competition in some geographic areas through the mid-1980's.

Earnings and Working Conditions

Beginning salaries for new graduates of occupational therapy programs working in hospitals averaged about $12,000 a year in 1976, according to a national survey conducted by the University of Texas Medical School. Some experienced therapists earned as much as $17,000, and some administrators as much as $25,000 to $30,000. In 1976, the average salary of experienced occupational therapists was 1 1/2 times the average earnings for all nonsupervisory workers in private industry, except farming.

In 1977, beginning therapists employed by the Veterans Administration (VA) earned starting salaries of $10,370 a year. The average salary paid occupational therapists working for the VA was about $16,000 at that time.

Many part-time positions are available for occupational therapists. Many therapists work for more than one employer and must travel between job locations.

Sources of Additional Information

For more information on occupational therapy as a career, write to:

American Occupational Therapy Association, 6000 Executive Blvd., Rockville, Md. 20852.

Those COTA's interested in qualifying for the examination to become a registered occupational therapist (OTR) through acquired work experience should contact the Director of Certification at the above address.

OCCUPATIONAL THERAPY ASSISTANTS & AIDES

(D.O.T. 079.368)

Nature of the Work

Occupational therapy assistants work under the supervision of professional occupational therapists to help rehabilitate patients who are physically and mentally disabled. They

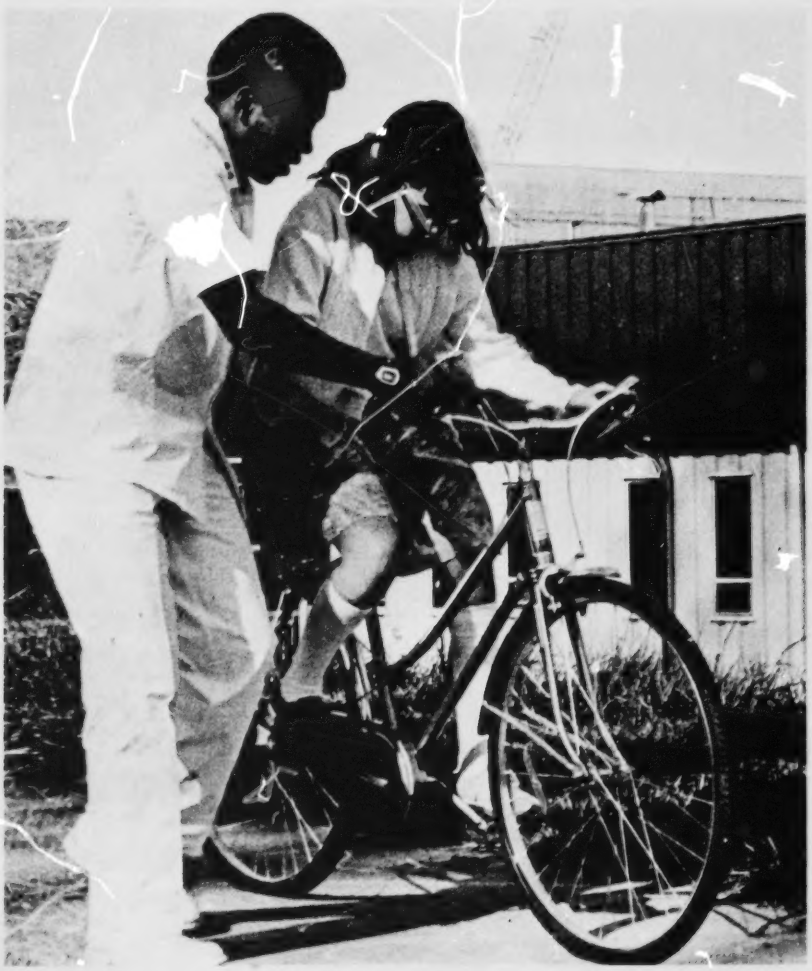
help plan and implement programs of educational, vocational, and recreational activities that strengthen patients' muscle power, increase motion and coordination, and develop self-sufficiency in overcoming disabilities.

Occupational therapy assistants teach clients self-care skills such as dressing, eating, and shaving; work-related skills such as the use of power tools; and recreational and social activities such as games, dramatics, and gardening. They also may teach creative skills such as woodworking, ceramics, and graphic arts.

Assistants must be able to teach a broad range of skills because of the wide variety of patients. They may work either with groups or with individual patients. When treating patients with diseases, assistants usually work under the supervision of professional occupational therapists. In other situations, such as organizing crafts projects for handicapped persons living in institutions, they may function independently, with only periodic consultation with professionals.

Occupational therapy aides order supplies, prepare work materials, and help maintain tools and equipment. They also may keep records on patients, prepare clinical notes, and perform other clerical duties.

Some small occupational therapy departments may consist only of a therapist and one other worker. In these cases, the assistant or aide may assume most of the duties of an occupational therapist, within the limits of his or her training.



Occupational therapy assistants must be able to teach a broad range of skills.

Places of Employment

About 8,900 people worked as occupational therapy assistants and aides in 1976. Almost half of all occupational therapy assistants work in hospitals. Others work in nursing homes, schools for handicapped children and the mentally retarded, rehabilitation and day care centers, special workshops, and outpatient clinics. A small number are members of the Armed Forces.

Occupational therapy aides work in the same locations as assistants, but they generally are most often employed in hospitals.

Training, Other Qualifications, and Advancement

Two types of educational programs prepare occupational therapy assistants: junior or community college programs that award an associate degree upon completion and vocational or technical programs of about 1 year's duration. In 1976, 42 schools offered educational programs approved by the American Occupational Therapy Association. Most of these are 2-year college programs leading to an associate degree. About one-third are 1-year vocational and technical school programs. In addition, the Armed Forces operate a school to train occupational therapy assistants.

Graduates of these programs who successfully complete the written national proficiency examination are certified by the American Occupational Therapy Association and receive the title Certified Occupational Therapy Assistant (COTA). In 1976, about 2,640 employed occupational therapy assistants were COTA's.

Approved programs combine classroom instruction with at least 2 months of supervised practical experience. Courses include the history and philosophy of occupational therapy, occupational therapy theory and skills, anatomy and physiology of the human body, the effect of illness and injury on patients, and human development. Students also practice skills and crafts they later will teach to patients.

Applicants for training programs must be high school graduates or the

equivalent. Among the subjects recommended for high school students interested in the occupational therapy field are health, biology, typing, and the social sciences. Preference sometimes is given to applicants who have taken courses in science and crafts and have previous work experience in a health care setting.

Occupational therapy aides train on the job in hospitals and other health care facilities. The length and content of their training varies depending on the level of difficulty of the duties that aides are expected to perform.

Occupational therapy assistants and aides should like people, have good physical and mental health, and be able to establish and maintain effective interpersonal relationships. They also should have manual skills since they must teach clients how to use tools and materials.

Occupational therapy assistants and aides who work in large health facilities begin with routine tasks and may advance to more responsible ones as they gain experience. A COTA with 4 years of approved work experience may take the examination to become a registered occupational therapist (OTR) without completing the remaining 2 years of study for a bachelor's degree in occupational therapy. Those COTA's considering this path of entry to the occupational therapy profession should contact the Director of Certification of the American Occupational Therapy Association to identify the types of experience required to qualify for the examination.

Employment Outlook

The employment of occupational therapy assistants and aides is expected to grow much faster than the average for all occupations, due to public interest in the rehabilitation of disabled people. All types of health care institutions, especially nursing homes and community health centers, will need more occupational therapy assistants through the mid-1980's.

Employment opportunities for occupational therapy assistants are expected to be very good through the mid-1980's, particularly for graduates of approved programs. Many openings will be created each year by growth in the occupation and even more will occur as workers die, retire, or leave the field for other reasons.

The number of educational programs for occupational therapy assistants is expected to increase, with the result that assistants in some geographical areas may face competition for jobs. On a national basis, however, the supply of graduates is likely to fall short of requirements.

Earnings and Working Conditions

In 1976, annual salaries generally ranged from $7,500 to $9,000 for inexperienced assistants. Experienced occupational therapy assistants earned between $8,500 and $12,000 a year, according to the limited information available. Those who completed an approved program generally earned higher starting salaries than beginners without any training. Occupational therapy assistants working for the Veterans Administration earned starting salaries of $7,408 annually in 1977, and the average of salaries paid to all occupational therapy assistants with the Federal Government was about $11,500 a year.

Occupational therapy aides earned beginning salaries of about $6,200 a year in 1976, according to the limited information available.

Occupational therapy assistants and aides occasionally may work evenings, weekends, and part time.

Sources of Additional Information

For information about work opportunities and programs offering training for occupational therapy assistants, contact:

American Occupational Therapy Association, 6000 Executive Blvd., Rockville, Md. 20852.

Those COTA's interested in qualifying for the examination to become a registered occupational therapist (OTR) through acquired work experience should contact the Director of Certification, American Occupational Therapy Association, at the above address.

PHYSICAL THERAPISTS

(D.O.T. 079.378)

Nature of the Work

Physical therapists help persons with muscle, nerve, joint, and bone diseases or injuries to overcome their disabilities. Their patients include accident victims, crippled children, and disabled older persons. Physical therapists perform and interpret tests and measurements for muscle strength, motor development, functional capacity, and respiratory and circulatory efficiency to develop programs for treatment in cooperation with the patient's physician. They evaluate the effectiveness of the treatment and discuss the patients' progress with physicians, psychologists, occupational therapists, and other specialists. When advisable, physical therapists revise the therapeutic procedures and treatments. They help disabled persons to accept their physical handicaps and adjust to them. They show members of the patients' families how to continue treatments at home.

Therapeutic procedures include exercises for increasing strength, endurance, coordination, and range of motion; electrical stimuli to activate paralyzed muscles; instruction in carrying out everyday activities and in the use of helping devices; and the application of massage, heat and cold, light, water, or electricity to relieve pain or improve the condition of muscles and skin.

Most physical therapists provide direct care to patients as staff members, supervisors, or self-employed practitioners. Physical therapists usually perform their own evaluations of patients; in large hospitals and nursing homes, however, the director or assistant director of the physical therapy department may handle this work, which requires extensive training and experience. Therapists may treat patients with a wide variety of

Physical therapists develop programs for treatment of disabled persons of all ages.

problems, or they may specialize in pediatrics, geriatrics, amputations, arthritis, or paralysis. Others teach or are consultants.

Places of Employment

About 25,000 persons worked as licensed physical therapists in 1976. The largest number work in hospitals. Nursing homes employ a growing number of physical therapists, and also contract for the services of self-employed therapists. Others work in rehabilitation centers or schools for crippled children. Some who work for public health agencies treat chronically sick patients in their own homes. Still others work in physicians' offices or clinics, teach in physical therapy educational programs, or work for research organizations. A few serve as consultants in government and voluntary agencies or are members of the Armed Forces.

Training, Other Qualifications, and Advancement

All States and the District of Columbia require a license to practice physical therapy. Applicants for a license must have a degree or certificate from an accredited physical therapy educational program and to qualify must pass a State board examination. Applicants may prepare for State board examinations in physical therapy through one of three types of programs, depending upon previous academic study. High school graduates can earn a 4-year bachelor's degree in physical therapy at a college or university. Students who already hold a bachelor's degree in another field, such as biology or physical education, can earn a second bachelor's degree or a certification in physical therapy through special programs lasting 12 to 16 months. These applicants also have the option of working for a master's degree in physical therapy.

In 1976, 11 certificate programs, 76 bachelor's degree programs and 5 master's degree programs were accredited by the American Physical Therapy Association and the American Medical Association to provide entry level training. There were also 17 other master's degree programs that provided advanced training to those already in the field. One of the certificate programs is sponsored jointly by the U.S. Army and Baylor University; graduates are commissioned as officers in the Army.

The physical therapy curriculum includes science courses such as anatomy, physiology, neuroanatomy, and neurophysiology; it also includes specialized courses such as biomechanics of motion, human growth and development, and manifestations of disease and trauma. Besides receiving classroom instruction, students get supervised clinical experience administering physical therapy to patients in a hospital or treatment center.

Competition for entry to all physical therapy programs is keen. Institutions offering a physical therapy program each year receive many more applications than the number of existing places. Consequently, students seriously interested in attending a physical therapy program must attain superior grades in their earlier studies, especially in science courses.

Personal traits that physical therapists need include patience, tact, resourcefulness, and emotional stability to help patients and their families understand the treatments and adjust to their handicaps. Physical therapists also should have manual dexterity and physical stamina. Many persons who want to determine whether they have the personal qualities needed for this occupation volunteer for summer or part-time work in the physical therapy department of a

hospital or clinic. High school courses that are useful include health, biology, social science, mathematics, and physical education.

A graduate degree combined with clinical experience increases opportunities for advancement, especially to teaching, research, and administrative positions.

Employment Outlook

Employment of physical therapists is expected to grow faster than the average for all occupations through the mid-1980's because of increased public recognition of the importance of rehabilitation. As programs to aid crippled children and other rehabilitation activities expand, and as growth takes place in nursing homes and other facilities for the elderly, many new positions for physical therapists are likely to be created. Many part-time positions should continue to be available.

However, the rapidly growing number of new graduates is expected to exceed the number of openings that will occur each year due to growth in the occupation and replacement of those who will die or retire. As a result, new graduates are expected to face some competition through the mid-1980's. Employment opportunities will be best in surburban and rural areas.

Earnings and Working Conditions

Starting salaries for new physical therapy graduates averaged about $11,200 a year in 1976, according to a national survey conducted by the University of Texas Medical School. Earnings of experienced physical therapists averaged about $14,000, about one and a half times as much as average earnings for all nonsupervisory workers in private industry, except farming.

Beginning therapists employed by the Veterans Administration (VA) earned starting salaries of $10,473 a year in 1977. The average salary paid therapists employed by the VA in 1977 was $15,700 annually; supervisory therapists may earn over $20,000.

Sources of Additional Information

Additional information on a career as a physical therapist and a list of accredited educational programs in physical therapy are available from:

American Physical Therapy Association, 1156 15th St. NW., Washington, D.C. 20005.

PHYSICAL THERAPIST ASSISTANTS AND AIDES

(D.O.T. 355.878)

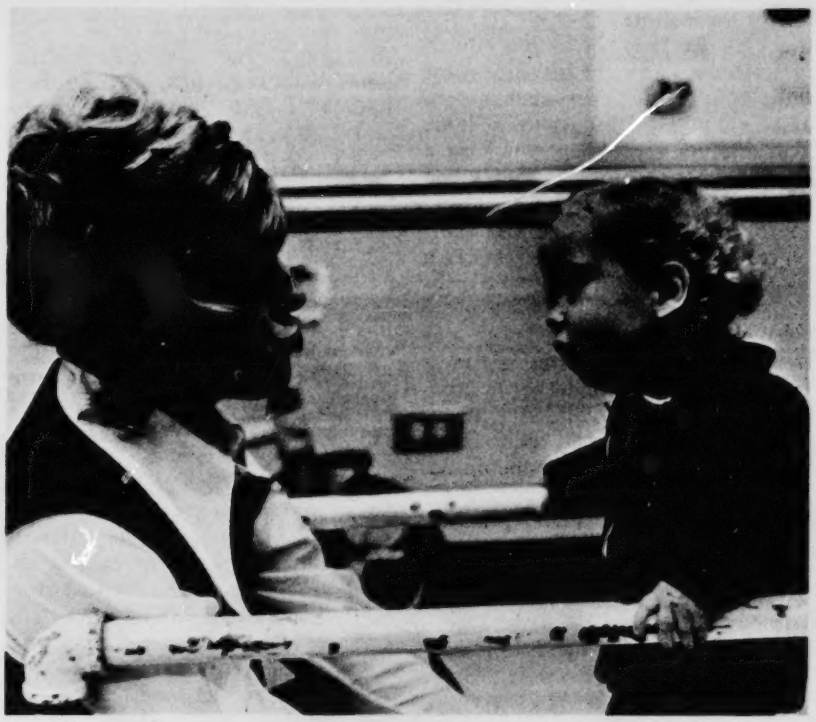
Nature of the Work

Physical therapist assistants and aides work under the supervision of professional physical therapists to rehabilitate disabled persons so that they may again lead useful and productive lives. They work to restore physical functions and prevent disability from injury or illness.

Assistants help physical therapists test patients to determine the extent of their capabilities and the best treatment for them. Using special therapy equipment, they apply heat, cold, light, ultra sound, and massage, and report to their supervisors on how well the patient is responding to treatment. Assistants help patients perform therapeutic exercises to build strength and increase motion as well as everyday activities such as walking and climbing stairs. They also help the physical therapist to instruct patients on how to use artificial limbs, braces, and splints.

Physical therapist aides help patients prepare for treatment, and may remove and replace devices such as braces, splints, and slings and transport patients to and from treatment areas. They may help assistants or therapists by supporting patients during treatment. Aides care for and assemble treatment equipment. They also make appointments, act as receptionists, and perform other clerical duties.

Some small health care institutions, such as small hospitals or nursing homes, employ only one person besides the therapist in the physical therapy department. In this case, the assistant or aide may assume most of



Aide helps patient do therapeutic exercises.

the duties of the therapist, within the limits of his or her training.

Places of Employment

About 12,500 persons worked as physical therapist assistants and aides in 1976. Most work in physical therapy departments of general and specialized hospitals. Others work in physicians' or physical therapists' offices and clinics, rehabilitation centers, or nursing homes for the chronically ill and elderly. Some community and government health agencies, schools for crippled children, and facilities for the mentally retarded also employ physical therapist assistants and aides. A small number are members of the Armed Forces.

Training, Other Qualifications, and Advancement

Training requirements for physical therapist assistants are not uniform throughout the country. In 19 States, assistants are licensed. They must be graduates of approved 2-year associate degree programs and pass a written proficiency examination. A few of these States have a "grandfather" clause that allows the educational requirement to be waived for those who learned their skills before associate degree programs became available. In States not requiring a license, physical therapy aides can advance to assistants by acquiring the necessary knowledge and skills on the job, although employers often prefer graduates of approved programs.

There were 37 approved programs to train physical therapist assistants in 1976. Most were in junior or community colleges, and all led to an associate degree. Courses include history and philosophy of rehabilitation, human growth and development, anatomy, physiology, and psychology. Studies also cover physical therapist assistant procedures including massage, therapeutic exercises, and heat and cold therapy. Supervised clinical experience also is a requirement of physical therapist assistant programs. The Armed Forces operate schools to train physical therapist assistants, but this training does not satisfy academic requirements for State licensure and no degree is awarded to graduates.

Physical therapist aides train on the job in hospitals and other health care facilities. The length and content of these training programs vary widely, depending on the level of difficulty of duties that aides are expected to perform, the particular services required by patients in the program, and the amount of time professional therapists spend in teaching trainees. Applicants admitted to physical therapist aide training programs generally must be high school graduates or the equivalent. Employers usually prefer that aides have previous hospital experience as nursing aides.

High school courses that are helpful to physical therapist assistants and aides are health, biology, psychology, physical education, mathematics, and typing.

Physical therapist assistants and aides need good physical health. They also need good manual dexterity to adjust equipment, body coordination to assist in positioning patients, and an interest in assisting the physically handicapped. Emotional stability is important because assistants and aides must maintain a positive, bright outlook while helping patients with very difficult handicaps. Patience and the ability to recognize and appreciate slight improvements also are helpful.

As physical therapist assistants and aides gain experience, they may advance to more responsible duties with corresponding pay increases. Some aides may become physical therapy assistants on the basis of acquired job experience. The opportunities for aides to advance in this way are best in areas where associate degree programs for physical therapist assistants are unavailable.

Physical therapist assistants with an associate degree from an approved program sometimes advance to physical therapists by earning the bachelor's degree in physical therapy. A student thinking about this option should arrange his or her associate degree curriculum carefully to correspond to the undergraduate requirements of the bachelor's degree program under consideration.

Employment Outlook

Job opportunities for physical therapist assistants and aides who are graduates of approved programs are expected to be excellent through the mid-1980's. In communities where there are large classes in physical therapist assistant programs, some graduates may find it necessary to move to other locations where no associate degree programs are available. For the Nation as a whole, however, the number of openings for physical therapist assistants caused by growth and replacement needs are expected to far exceed the number of graduates from these programs.

The number of physical therapist assistants and aides is expected to increase faster than the average for all occupations as the demand for professional physical therapists grows. Overall demand in the field stems from increased public awareness of the importance of rehabilitation and the growing number of nursing homes which provide therapeutic services to the elderly. Expanded physical therapy services planned by hospitals, nursing homes, schools for crippled children, facilities for mentally retarded, and other health and rehabilitation centers are expected to further increase the need for physical therapist assistants and aides.

Earnings and Working Conditions

In 1976, weekly salaries averaged about $116 for beginning physical therapist aides and about $170 for those with experience, according to the limited information available. Physical therapist assistants received higher salaries than aides, beginning at about $175 a week. Experienced physical therapist assistants earned as much as $325 weekly. Physical therapist assistants working for the Veterans Administration (VA) earned starting salaries of $115 a week in 1977, and the average of salaries paid to all physical therapist assistants with the VA was about $214 weekly.

Sources of Additional Information

Information on a career as a physical therapist assistant or aide and on

programs offering training for physical therapist assistant is available from:

The American Physical Therapy Association, 1156 15th St. NW., Washington, D.C. 20005.

SPEECH PATHOLOGISTS AND AUDIOLOGISTS

(D.O.T. 079.108)

Nature of the Work

About one out of ten Americans is unable to speak or hear clearly. Children who have trouble speaking or hearing cannot participate fully with other children in play or in normal classroom activities. Adults having speech or hearing impairments often have problems in job adjustment. Speech pathologists and audiologists provide direct services to these people by evaluating their speech or hearing disorders and then providing treatment.

The speech pathologist works with children and adults who have speech, language, and voice disorders resulting from causes such as total or partial hearing loss, brain injury, cleft palate, mental retardation, emotional problems, or foreign dialect. The audiologist primarily assesses and treats hearing problems. Speech and hearing, however, are so interrelated that, to be competent in one of these fields, one must be familiar with both.

The duties of speech pathologists and audiologists vary with education, experience, and place of employment. In clinics, either in schools or other locations, they use diagnostic procedures to identify and evaluate speech and hearing disorders. Then, in cooperation with physicians, psychologists, physical therapists, and counselors, they develop and implement an organized program of therapy. Some speech pathologists and audiologists conduct research such as investigating the causes of communicative disorders and improving methods for clinical services. Others supervise clinical activities.

Speech pathologists and audiologists in colleges and universities teach courses in the principles of communication, communication disorders, and clinical techniques; participate in educational programs for physicians, nurses, and teachers; and work in university clinics and research centers. Although most speech pathologists and audiologists do some administrative work, directors of speech and hearing clinics and coordinators of speech and hearing in schools, health departments, or government agencies may be totally involved in administration.

Speech pathologists and audiologists help people overcome speech and hearing disorders.

Places of Employment

Over 38,000 persons worked as speech pathologists and audiologists in 1976. Over one-half worked in public schools. Colleges and universities employed many in classrooms, clinics, and research centers. The rest worked in hospitals, speech and hearing centers, government agencies, industry, and private practice.

Training, Other Qualifications, and Advancement

An increasing number of States require a master's degree or its equivalent for speech pathologists and audiologists. In addition, many Federal programs, such as Medicare and Medicaid, require participating speech pathologists and audiologists to have a master's degree. Some States require a teaching certificate to work in the public schools. In 29 States, those offering speech pathology and audiology services outside of schools must be licensed. Licensure requirements vary among the States.

Undergraduate courses in speech pathology and audiology programs include anatomy, biology, physiology, physics, sociology, linguistics, semantics, and phonetics. Courses in speech and hearing as well as in child psychology and psychology of the exceptional child also are helpful. This training usually is available at colleges that offer a broad liberal arts program.

In early 1977, about 228 colleges and universities offered graduate education in speech pathology and audiology. Courses at the graduate level include advanced anatomy and physiology of the areas involved in hearing and speech; acoustics; psychological aspects of communication; and analysis of speech production, language abilities, and auditory processes. Graduate students also take courses in the evaluation and remediation of speech, language, and hearing disorders. All students at the graduate level receive supervised clinical training with clients having communicative disorders.

A limited number of scholarships, fellowships, assistantships, and traineeships are available in this field. Teaching and training grants to colleges and universities that have programs in speech and hearing are given by a number of agencies of the U.S. Department of Health, Education, and Welfare—the Rehabilitation Services Administration, the Maternal and Child Health Service, the Office of Education, and the National Institutes of Health. In addition, some Federal agencies distribute money to colleges to aid graduate students in speech and hearing programs. A large number of private organizations and foundations also provide financial assistance for education in this field.

Meeting the American Speech and Hearing Association's (ASHA) requirements for a Certificate of Clinical Competence usually is necessary in order to advance professionally and to earn a higher salary. To earn the CCC, a person must have a master's degree or its equivalent and complete a one-year internship approved by the Association. Passing a national written examination also is required.

Speech pathologists and audiologists should be able to approach problems objectively and have a concern for the needs of others. They also should have considerable patience, because a client's progress often is slow. A person who desires a career in speech pathology and audiology should be able to accept responsibility, work independently, and direct others. The ability to work with detail is important. Speech pathologists and audiologists receive satisfaction from seeing clients' speech or hearing improve as a result of their work.

Employment Outlook

The employment of speech pathologists and audiologists is expected to increase faster than the average for all other occupations through the mid-1980's. However, temporary reductions in government spending on speech and hearing programs may decrease the number of new positions available at any one time. Although some jobs will be available for those having only a bachelor's degree, the increasing emphasis placed on the master's degree by State governments, school systems, and Federal agencies will limit opportunities at the bachelor's degree level.

While employment opportunities for those with a master's degree generally should be favorable, the large number of graduates entering this field may cause some competition. Many openings will occur outside of the large metropolitan areas and some graduates will have to relocate in order to find employment. Competition for teaching positions in colleges and universities will be very strong throughout the period.

Population growth, which will increase the number of persons having speech and hearing problems, is one of the factors underlying the expected expansion in employment of speech pathologists and audiologists through the mid-1980's. In addition, there is a trend toward earlier recognition and treatment of hearing and language problems in children. Many school-age children, thought to have learning disabilities, actually have language or hearing disorders which speech pathologists and audiologists can treat.

Other factors expected to increase demand for speech pathologists and audiologists are expansion in expenditures for medical research and the growing public interest in speech and hearing disorders. State and Federal laws now require school systems to provide equal educational services for handicapped children, and Medicare and Medicaid programs have expanded their coverage of speech and hearing services.

Earnings and Working Conditions

In 1977, the annual starting salary in the Federal Government for speech pathologists and audiologists with a master's degree was $14,097. Those having a doctoral degree were eligible to start at $17,056. The average salary of all speech pathologists and audiologists working for the Federal Government was $21,804.

Salaries of speech pathologists outside of government tend to be higher in areas having large urban populations. Many speech pathologists and audiologists, particularly those in colleges and universities, supplement their incomes by acting as consultants, engaging in research projects, and writing books and articles.

Many speech pathologists and audiologists work over 40 hours a week. Almost all receive fringe benefits such as paid vacations, sick leave, and retirement programs.

Sources of Additional Information

State departments of education can supply information on certification requirements for those who wish to work in public schools.

A list of college and university programs and a booklet on student financial aid as well as general career information are available from:

American Speech and Hearing Association, 9030 Old Georgetown Rd., Washington, D.C. 20014.

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